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Certified by

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PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. 1.53(c).

DOCKET NO.: 8822-89 PX				Type a plus sign (+) inside this box →		+	
INVENTOR(S)/APPLICANT(S)							
LAST NAME		FIRST NAME		INITIAL		RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)	
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TITLE OF THE INVENTION (maximum 280 characters)							
Paintball with Powder Core							
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STATE		PA		ZIP		19103	
COUNTRY				US			
ENCLOSED APPLICATION PARTS (check all that apply)							
<input checked="" type="checkbox"/> Specification		Number of pages: 5		<input checked="" type="checkbox"/> Small Entity Status Is Claimed			
<input type="checkbox"/> Drawing(s)		Number of sheets:		<input type="checkbox"/> Other (specify)			
METHOD OF PAYMENT (check one)							
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the Provisional Application filing fees				Provisional Filing Fee Amount:			
<input type="checkbox"/> The Director is hereby authorized to charge filing fees to Deposit Account No. 50-0573.				<input checked="" type="checkbox"/> \$ 80.00 (small entity) <input type="checkbox"/> \$160.00 (large entity)			

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.
☐ Yes, the name of the U.S. Governmental Agency and the Governmental contract number are:

Respectfully submitted,



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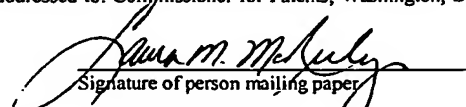
☐ Additional inventors are being named on separately numbered sheets attached hereto.

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.10

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PAINTBALL WITH POWDER CORE

BACKGROUND

In recent years, the popularity of the combat game known as "Paintball" has increased dramatically. In one form of this game, players on two teams are each supplied with a paintball marker and a number of paintballs, that is, rounds of ammunition. The paintballs comprise a spherical gelatin or similar shell filled with a non-toxic, water-soluble, biodegradable paint ("paintball marking paint"). Paintball markers fire these paintballs using compressed gas (e.g. CO₂, N₂, etc.) as a propellant. When a player is hit with a paintball, the ball ruptures, "painting" the target providing dramatic evidence of the hit, without injuring the player. Paintball games are organized on levels from local competition to international matches, and paintball outings are often set up between competing teams used for executive training and relaxation, or for military training maneuvers and the like.

Soft and hard capsules or casings have been employed in the sports and leisure fields to contain paintball marking paint formulations within capsules adapted to rupture upon impact with an intended target. Generally, such paintballs have the physical properties in which the casing is hard and impact resistant enough to survive high velocity projectile forces, while at the same time adapted to rupture and release the dye composition upon high velocity contact with

the target surface. Paintball is now a recognized and popular sporting activity, played by thousands of men and women throughout this country, as well as thirty other countries worldwide.

Currently available paintballs formed from gelatin or starch shells and filled with marking paintball marking paint suffer various deficiencies, both in manufacture, and in use. These types of paintballs are expensive to manufacture.

There exists a need in the field of paintball, for improved technology relating to paintball ammunition. In particular, there is a need to improve the attributes of paintballs, by provided a paintball that is efficient to manufacture, low cost, and safe to the environment.

DESCRIPTION OF THE INVENTION

The present invention is directed to both a paintball core, and a paintball having the core of the present invention. A paintball core according to the present invention comprises a core of a powdery material when complete and which material may be colored. An example of a preferred material is chalk, which can be made in a multitude of different colors.

The powdery material is formed into the desired paintball shape, e.g., spherical, and includes a shell that preserves the shape of the paintball until impact. The shell can be made from the powder itself with a binder added to the powder to add rigidity. Alternately, a shell can be separately fabricated or coated onto the powdery core.

The core is formed so as to be stable and designed to retain its shape for a reasonable period of time before the paintball is used. The outer shell or surface layer of the paintball is

designed to protect and maintain the shape of the core until the paintball is fired and impacts a target.

The core is formed from a base powder material. Examples of suitable materials include chalk, zinc oxide or talc. A colorant is preferably added to the base powder. A binder or binding agent, which can be a liquid, may be added to the base powder to assist in molding the material into the desired shape.

In order to form the core, several different methods are contemplated. In the first method, the core material is selected so as to be compactable in its dry state. Any conventional molding operation can be used to form the paintball. For example, the powdered material could be poured into a first mold cavity and then compacted with a second molded cavity into the desired shape. The pressure applied compresses the material into a solidified core. Depending on the compressibility of the material, a shell may or may not be needed.

The second method of forming the core is through the use of a damp or slurry mixture. In this method, the powder is mixed with a suitable binding agent into a moldable formulation. The moldable formulation is then injected or otherwise channeled into a mold cavity where the material is compressed into the desired shape. The molded ball is then allowed to dry or cure with either ambient or warmed air. Various binding agents are available in the cosmetic industry for compacting powders.

It is also contemplated that a drying agent can be added to a wet slurry of powder to assist in the drying process. Those skilled in the art would be readily capable of selecting a suitable drying agent to add to a desired powder formulation.

The shell can be made through a variety of methods. For example, gelatin compositions, starch compositions, or plastic compositions may be used in forming the outer shell. The outer shell may also be formed from albumin, or a mixture of albumin and other suitable materials. The shell can be made as two shell halves. The core would be placed into one shell half and the second half attached to the first like in conventional paintball forming processes. Alternately, the shell can be formed over the core, such as by spraying or dunking.

Several properties of the paintball core of the present invention can be controlled and manipulated in order to alter the characteristics, makeup and performance of a paintball formed utilizing the core of the present invention. For example, the degree the core is compacted during formation can be controlled in order to alter the density of the core. The core and/or shell could be formed so as to fracture at a desired impact force or in a predetermined manner. The core and/or shell is preferably designed to withstand the forces imposed on the ball during handling and firing.

It is understood that the present invention is not limited to the particular embodiments shown and described herein, but that various changes and modifications may be made without departing from the scope and spirit of the invention.

What is claimed is:

1. A paintball comprising a core formed from a powdery material.
2. A paintball according to claim 1 further comprising a shell formed about the core.

3. A method of making a paintball comprising the steps of channeling a powder into a mold and compacting the powder in the mold into final shape.

4. A method according to claim 3 further comprising the step of adding a binder to the powder prior to compacting the powder.

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